

REMARKS/ARGUMENTS

Status of Claims

Claims 7, 8, 16, and 17 remain in this application. Claims 1-6 and 9-15 have been canceled.

Formal Matters

Applicants affirm the election to prosecute Group II, claims 7, 8, 16, and 17 without traverse.

Applicants have amended the Title to be more consistent with the remaining claims.

Applicants have corrected the informalities noted in the Office Action by moving the second sentence of paragraph 0012 into a new paragraph 0012.1, adding "of the invention" in the subheading between paragraphs 0017 and 0018, and changing "42" to "142" in paragraph 0038. Therefore, Applicant respectfully requests that the objection to the specification be withdrawn.

Applicants have amended Figs. 3 and 5 to add the reference numbers per the Examiner's helpful suggestion. Therefore, Applicant respectfully requests that the objection to the drawings be withdrawn.

Claims fully comply with the requirements of 35 USC 112

In response to the Office Action question at the top of page 5, Applicant has amended claim 16 to remove the unnecessary "the" in claim 16, line 7.

However, Applicant respectfully traverses the remainder of the rejection of claims 16 and 17 under 35 USC 112, second paragraph.

With respect to claim 16, the Office Action includes a question about The Office Action states:

In claim 16, note that it is unclear whether the characterization of the first portion of adhesive is correct as recited. That is to say, is it proper to say that the first portion of adhesive being adhesively attached to ~ the dielectric layer while not being adhesively attached to the electrical device? Note from the specification description of the final product, which defines the interconnection structure (i.e. Figs. 6, 12)3 shows that the first portion of adhesive (along with the portion of the dielectric layer affixed thereto) is totally remove (i.e.. does not exist) in the final product. Clarification is needed.

In response, Applicant submits that the claim 16 is correct as written. Support for this assertion can be found in paragraphs 0034-0036 of the specification. Paragraph, 0034, for example, states that "first portion 150 of adhesive 114 is preferably chosen to result in a sufficiently large area such that active area 120 of electrical device 116 (FIG. 11) will be substantially free of un-cured adhesive when attached to dielectric layer 110." Paragraph 0036 states

Next second portion 152 of adhesive 114 is used to attach at least one electrical device 116 such that an active area 120 of the at least one electrical device is aligned with the first portion of the adhesive to result in an interconnection structure 158 of the embodiment of **FIG. 10** wherein first portion 150 of the cured adhesive is adhesively attached to the dielectric layer but not adhesively attached to the at least one electrical device 116.

Thus, the first portion of the adhesive becomes adhesively attached to the dielectric layer due to the early curing

and is not adhesively attached to the electrical device due to being cured prior to the attachment of the electrical device. This provides a benefit of preventing reflow of adhesive into the active device area.

With respect to the fact that portion 150 of adhesive is shown as being removed in the "final product" of FIG. 12, Applicant submits that Applicant still has the option of claiming intermediate products of Figs. 10 and 11.

Therefore, Applicant respectfully submits that claims 16 and 17 are in full compliance with the requirements of 35 USC 112, 2nd paragraph.

Claims define allowable subject matter over the applied art

Applicant respectfully traverses the rejection of claims 7, 8, 16, and 17 under 35 USC 103(a) over Kornrumpf et al. US5355102 (hereinafter Kornrumpf) in view of Gamand US5635762.

Claim 8 has been amended to depend from claim 7, and claim 16 has been amended to correct a typing error (the unnecessary "the" discussed above).

With respect to claim 7, from which claim 8 depends, Applicant respectfully submits that the applied references do not teach, suggest, or disclose (either individually or in combination) the claim 7 recitations of:

7. An interconnection structure comprising:
 - a dielectric layer;
 - a first metallization pattern on the dielectric layer, the **first metallization pattern including at least one etch stop having a perimeter defining at least one etch stop opening;**
 - a cured adhesive on a portion of the dielectric layer, the adhesive not present in an area aligned with the at least one etch stop;
 - at least one electrical device being attached to the dielectric layer by the adhesive such that an active area of the at least one electrical device is aligned with the etch stop perimeter.

Kornrumpf does appear to teach, suggest, or disclose an etch stop. As can be seen most clearly in Kornrumpf FIG. 2, the perimeter defined by the mask 38 does not have any etch stop defined by the area below it. In comparison with Applicant's FIG. 3, the etch stop is under mask 28 to stop the etching. The referenced Kornrumpf column 10, lines 61-66 do relate to the formation of a metallization pattern 34, 32, but this pattern does not appear to stop etching from occurring on the microwave device surface during formation of the opening through mask 38.

Also, it is unlikely that metallization pattern 34, 32 forms a perimeter. The function of pattern 34, 32 is couple to input and output pads 22 and 24 to the system (column 9, lines 44-48). It would make no sense to have these pads coupled together in a perimeter loop.

Gamand does not overcome the above noted deficiencies of Kornrumpf. Even if Gamand is read as describing a centrally located active element, the element of the etch stop is still missing from the applied references.

Therefore, Applicant respectfully submits that a prima facie case has not been presented with respect to claim 7 and to claim 8 which depends therefrom.

With respect to claim 16, from which claim 17 depends, Applicant respectfully submits that the applied

references do not teach, suggest, or disclose (either individually or in combination) the claim 16 recitations of
(with emphasis added):

16. An interconnection structure comprising:
a dielectric layer;
a first portion of cured adhesive;
a second portion of cured adhesive;
at least one electrical device being attached to the dielectric layer by the second
portion of cured adhesive such that an active area of at least one electrical device is aligned with
the at least one predetermined area defined by the first portion of cured adhesive, **the first
portion of the cured adhesive being adhesively attached to the dielectric layer and not
adhesively attached to the at least one electrical device.**

Applicant does not see a specific recitation to claim 16 in the 35 USC 103(a) discussion but is interpreting the Office action to give the "first portion of cured adhesive" no weight based upon the 35 USC 112 rejection. Applicants respectfully submit that that the rejection has been overcome and that the recitation is appropriate for consideration. Applicants have not found any such recitation in the applied references of Kornrumpf and Gamand either alone or in combination. See, for example, Kornrumpf, column 10, lines 21-26 which describe bonding the polyimide layer to the component by a thermoplastic adhesive. No pre-curing is discussed, and thermoplastic materials will inherently re-soften and flow upon subsequent reheating (Kornrumpf column 10, lines 27-34) thus making it not possible to have a first portion of cured adhesive distinct from the uncured in the thermoplastic adhesive embodiment of Kornrumpf.

Therefore, Applicant respectfully submits that a prima facie case has not been presented with respect to claim 16 and to claim 17 which depends therefrom.

Summary

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Should the Examiner believe that anything further is needed to place the application in even better condition for allowance, the Examiner is requested to contact applicant's undersigned representative at the telephone number below.

Respectfully submitted,

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Attachment: Replacement Sheet

Appl. No. 10/714,376
Amdt. Dated 22 November 2004
Reply to Office action of 2 September 2004

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figs. 3 and 5. This sheet 2, which includes Figs. 3, 4, and 5, replaces the original sheet 2 including Figs. 3, 4, and 5. In Fig. 3, previously omitted element 28 has been added. In Fig. 5, previously omitted element 18 has been added.

Attachments: Replacement Sheet